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SUSTAINABILITY OF ASSISTED SHELTER PROJECTS IN POST-CYCLONE COMMUNITIES: THE *SOUTHKHALI* CASE, BANGLADESH

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ABSTRACT

Sustainability results from the combination of a number of socio-cultural, economical, organizational, technical and environmental factors in development. Any project is only sustainable when it meets today's needs and also thinks about tomorrow's possible problems and ways to resolve those. Sustainability of housing projects, therefore, must also consider all these. Yet in Bangladesh, it is usual to have un-sustainable projects even in the presence of norms and prior knowledge. Shocking but a matter of fact is that situations are even worse in emergencies (e.g. post-cyclone situation); considering assistance (thus assisted shelters/houses), and especially the intensions and implementation strategy behind that, the sustainability of many projects hence are seldom beyond questioning. As many previous studies (in and outside Bangladesh) in similar situations predict and point out, sustainability could be really overlooked in such forms of (re)development. Having this in mind, and after visiting one such distressed community (*Southkhali, Bagerhat*), the predictions do not seem wrong. This research, thus, aims to verify the nature and extent of sustainability that truly characterizes these assisted projects in Bangladesh.

Key words: Post-disaster settlements, external assistance, shelter process, sustainability, rural-coastal areas

I. INTRODUCTION

Super cyclone *Sidr* struck Bangladesh hard on its South-Western coast on November 2007, with winds up to 240 km/hr. The *category 4* storm was accompanied by tidal surges, which breached embankments, flooded low-lying areas and caused extensive destruction to overall physical structure. Four of Bangladesh's thirty districts were classified as being *severely affected* (all from the South-West zone) while a further eight's level of distress were moderate. However, of the 2.3 million households that were affected to some extent by the severity of *Sidr*, about one million were totally or almost devastated [1]. However, this government source also confirms that amongst all the estimated losses, housing by and large remains the most affected sector, almost doubling the loss in agricultural sector (*Ibid*). This study, therefore, seeks to identify the kinds of assistances that have been extended in *immediate housing* (the term *housing* will be used from here on in this article to denote shelter) provision, at one of the severely affected areas. Consequently, it searches for the appropriateness of all the assistances regarding its target group.

II. BACKGROUND AND RATIONALE

In its *Early Recovery Strategy*, the Government of Bangladesh (GoB) (along with its major donors including *World Bank* and *European Commission*) states that *Community Infrastructure Repair* programs are to be launched to repair economic and social infrastructure while providing intermediate job opportunities (*Ibid*). The assistance was expected to help repair critical infrastructure while increasing the purchasing power of the affected population. The document also states that the strategy would be to provide transitional shelters for those in need, while introducing *new concepts* of house-building based on the principles of *Core Shelter*. *Core Shelter*, however, is the construction of a small house having strong cyclone-resistant structure to which storage spaces, verandas and extra rooms can be further added as time progresses (*Ibid*). This apparently novel approach to shelter provision

ensures two things; one, it ensures the construction of cyclone-resistant houses, while the other speaks about *Community Participation*, through the provision of acceptable and affordable, for people who are most poor and vulnerable.

Nevertheless, previous experiences of post-disaster rehabilitation programs in Bangladesh were not even close to promising as Beck discloses [2]. The abovementioned words only seem perfect as they appear in black and white. In reality, during a prior visit to *Southkhali*[1], the researcher came across similar downbeat information regarding affordability and acceptability of these shelters, which also conforms to the previous experience of Beck. The motivation behind a further study therefore arises from this similar realization by two different researchers, working in different contexts while coming across similar events.

III. OBJECTIVE AND METHODOLOGY

In light of problem-discussions, this research intends:

- To identify the major 'types' of assistances in post-cyclone *housing* sector in rural-coastal Bangladesh
- To find out about the contribution of assistances in housing rehabilitation for these communities

To attain the primary objective, secondary literary sources were sought for. A rather concise theoretical platform was also created using reliable literature; these literature (in forms of case studies mostly), in turn, provided for the realization of variables. Later, during a field survey, these variables have been implemented to accomplish the second and more crucial objective. Besides, empirical evidences acquired from the field survey have been used in a deductive manner also to validate the authenticity of secondary sources. The range of the assistance period for the purpose of the study has been limited to between the days *Sidr* hit the study area until the first week of November 2008 (when the field survey was conducted). Primary information regarding major types of assisted shelters was located within the study area through two *Focus Group Discussions*[2] (FGD). Later, from each such type, one sample has been chosen on a random basis. An in-depth household survey[3] composed of a number of structured and open ended questions has been used for each selected sample. The findings here are presented mostly in a descriptive manner.

However, this study is kept limited within two selected villages in the *Southkhali Thana*, namely *Dakshin Southkhali* and *Uttar Southkhali* respectively. These two, represent the two most devastated villages during *Sidr* as almost a thousand people died from them alone.

IV. RESEARCH QUESTION

To what extent post-cyclone shelters are sustainable that base on external assistances?

V. ASSESSING SHELTER-SUSTAINABILITY: PARAMETERS IN PRACTICE

In its definition, UN-HABITAT identifies [3], that *Disaster mitigation and vulnerability reduction, Land and property administration, Longer-term shelter strategies, Economic recovery, Participation and good governance, Partnerships* and *Capacity building* are the major functions of *Sustainable Relief and Reconstruction*. Yet, for the purpose of this study, the discussion focuses mostly on *Long-term shelter strategies*.

As found, assistances often focus on providing shelters quickly (perhaps the aftermath also demands so), and thus without taking into account the impact of short-term shelter strategies on the affected communities. In effect, the system for rebuilding houses has often been cheap, easily transportable prefabricated housing, which can be swiftly erected in complete disregard of local knowledge and culture. In the planning of projects dealing with shelter and infrastructure provision, it is vital to think about the long-term effects of shelter programmes, which must consider (*Ibid*):

1. One of the severely distressed rural coastal *Thana* under *Bagerhat* (one of the four severely affected districts); *Southkhali* is situated on the estuary of *Baleshwar river near the Bay of Bengal*
2. Socially oriented research instrument to capture real-life data (qualitative mostly) in a participatory environment carried out in presence of small groups (5-12 persons); data collection takes lesser time, compared with traditional household survey
3. The survey parameters (i.e. indicators) have been chosen in light of the discussions made in the following section

- Implementation of realistic and permanent re-construction
- Help rebuild community confidence
- Support structures for civic responsibility and governance through participatory approach
- Adopt demand-driven approaches with continual assessment and monitoring of changing needs and capacities
- Support capacity improvement and raise awareness amongst the affected
- Assign an organization on top of political power and decision-making, with a clear mandate supported by appropriate legislation, adequate resources, direct links to ministries and with disaster-recovery knowledge

The following comparative analysis (table 1) between post-disaster housing reconstructions in these severely affected locations from around the world reveals the development focus and the roles of various stakeholders.

Table 1: Showing a comparative analysis of global post-disaster housing reconstruction in major affected areas [4]

Areas of analysis	**Gujarat (India) Earthquake (2001)**	**Sri Lanka Earthquake (2001)**	**Indonesia Tsunami (2004)**	**Katrina (USA) Hurricane (2005)**	**Pakistan Earthquake (2005)**
Re-constructio n Strategy	80% owner driven; 20% public private partnership (NGOs)	73% owner driven; 27% donor/NGO driven	100% donor and NGO driven	100% government sponsored-contractor driven	100% owner driven
Technical assistance/ training	Government's assistance through formal training (for 29,000 masons and 6,200 engineers). Additional technical assistance through donor	Government providing technical assistance/advic e without any formal training program	Government's support through supervision consultant and technical field officer who also train community members; own training/works hop by NGOs	Federal Govt. through *Pathway Construction Initiative*; workforce for construction industry. FEMA and HUD also worked with the affected for preparedness and repairing houses	Government's technical assistance through Army-led Assistances and Inspections; engagement of NGOs
Ensuring compliance and building quality and standards	Multi hazard resistant construction; instalments paid after engineer's certification. 3rd party audit	Construction as per minimum accepted standards ensured through direct donor / NGO assistance. 3rd party technical quality audits	3rd Party monitoring and evaluation through UN-Habitat to look at performance of housing program	Construction as per building codes ensured through respective housing authorities of affected areas	Disbursement after inspections and certification by *AI* teams on house's seismic standards. *Compliance Monitoring Teams* are launched and a 3rd audit is planned

In another comparative study on four severely earthquake affected communities (Columbia, El Salvador and two locations in Turkey), Davidson *et al.* also mentions a few indicators that were used to measure the degree of community-participation in those projects [5]. It their effort, the stakeholders (Beneficiaries, NGOs, Governments, Hired contractors and Private firms) were identified and *Program initiation*, *Project initiation*, *Project financing*, *Design*, *Construction* and *Post-project modifications* were compared against each other. Similarly, [6] Jayaraj shares similar knowledge acquired from working in post-cyclone reconstruction program at *Andhra*, India. She stresses on the importance of,

- Community managed, controlled and owned, and socio-culturally acceptable reconstruction
- Mutual support of the communities, enlisted self-help and voluntary labour
- Locally existing and ecologically friendly low-cost materials
- Simple, cost effective, research based technology that is easily adaptable and maintainable
- Old and useful building materials usage, avoidance of wastage and minimized construction-cost
- Encouragement of *labour intensive technology* and discouragement of *mechanization of construction*
- Upgradation of traditional skills, indigenous technology and usage of local products and services

On another hand, Ali, through her academic research, argues about quite a comprehensive set of variables represented by appropriate indicators (table 2), to measure post-disaster shelters' sustainability [7]. In a case based study in Pakistan, she justifies the usefulness of the operationalized indicators in measuring sustainability in and around areas of Northern Pakistan devastated by the *South Asia Earthquake*.

Table 2: Showing variables and indicators used to study post-earthquake settlements in Pakistan (*Ibid*)

Stakeholders' participation	Material	Design
- Information sharing - Collaboration - Owner driven or not - Participation - Subsidy - Community skills - Local entrepreneurs & material supply	- Local materials - Material strength - Material weight - Toxicity of materials	- Flexibility: varied use of space - Sense of community - Household activities - Livestock shelter - Storage - Drinking water - Sanitation

Apart from all material concerns, however, there remains one last important issue that concerns the identity of a particular *place*, which is the unseen part of an individual household yet essential for expressing the unique visual fabric of that place through multiple house-forms. As Rapoport suggests, the close relation of housing and culture also implies that houses often communicates *identity,* which remains one of the key elements of culture of a particular context [8]. Here, the latent functions (meanings) and images are far more important than instrumental functions. Nevertheless, depending on these previous discussions and shared experiences from various cases mentioned, a set of relevant parameters have been so designed to measure the affects of assistances on post-cyclone shelters in the rural-coastal areas of Bangladesh; these are elaborated and discussed about in the following section.

IV. FINDINGS

A. External Assistances

Various forms of assistances regarding shelter for all cyclone-affected areas following *Sidr* are sometimes provided directly or through local agencies. Particularly in this case study area (*Southkhali*), however, in combination with a few other (for some cases, unknown) donors (both personal donor and smaller organizational donation through their own channel), the assistances have been recognized; these are shown in bold texts in the table below.

Table 3: Showing shelter-assistances by major donors in post-*Sidr* Bangladesh [9]

Donor (channel)	Type and description of assistance
RC/Belgium (Belgium)	Rehabilitation of houses
Central Emergency Response Fund (UNDP)	Emergency shelter
World Bank (Denmark)	Facilitating transition and reconstruction
EC Humanitarian Aid Office (Caritas, Germany)	Shelter & latrines
EC Humanitarian Aid Office (Muslim Aid)	Shelters as emergency response
Germany (HI - CW)	Shelter materials
Iran (RC/Iran)s	Tents
Japan (to affected government)	Tents, plastic sheeting etc.
Jordan (to affected government)]	Tents
PMU-Interlife (PMU-I)	Building materials
Saudi Arabia (to affected government)	Cash for satisfying urgent requirements (used for shelter)
Sweden (PMU-I)	Building material
UK (UN Agencies)	Housing repair
USA (SC–US & WV)	Shelter

B. Selected shelters: visual evidences

In this section, survey findings are presented in combination with visual evidences; each type of house is represented by one example including plan and photographs. However, these are followed by a table of summarized data, compiling all findings regarding the pre-selected parameters to check on the sustainability of assisted houses.

Figure 1: Showing Assisted shelter-type 1 (Muslim hands); plan and views (Author, 2008)

Figure 2: Showing Assisted shelter-type 2 (Muslim Aid UK and ECHO); plan, views, details (Author, 2008)

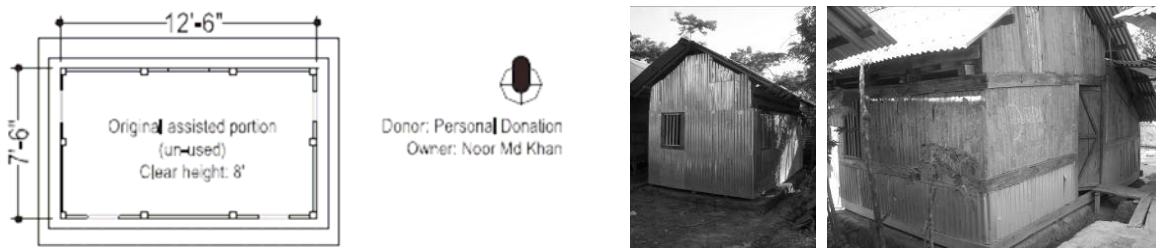

Figure 3: Showing Assisted shelter-type 3 (Personal donation); plan and views (Author, 2008)

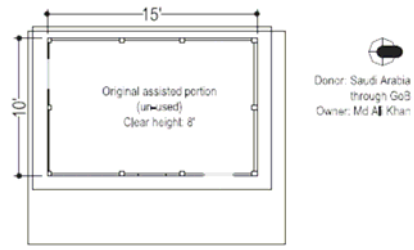

Figure 4: Showing Assisted shelter-type 4 (Kingdom of Saudi Arabia through GoB); plan, views and roof construction (Author, 2008)

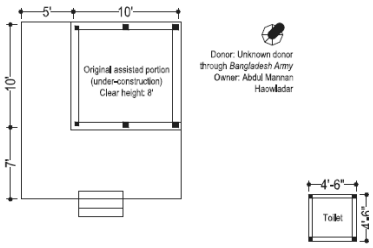

Figure 5: Showing Assisted shelter-type 5 (Unknown donor through Bangladesh Army); plan and incomplete structure (Author, 2008)

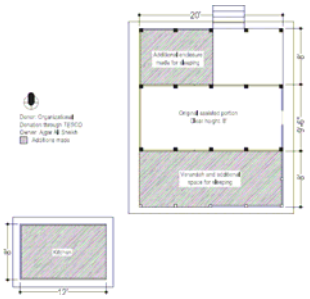

Figure 6: Showing Assisted shelter-type 6 (TESCO); plan, views and roof construction details (Author, 2008)

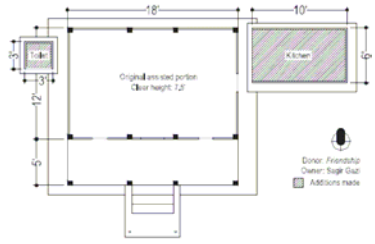

Figure 7: Showing Assisted shelter-type 7 (Friendship); plan and views (Author, 2008)

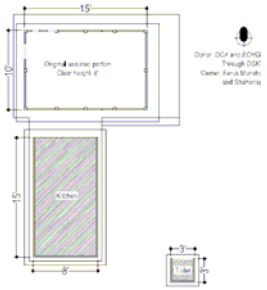

Figure 8: Showing Assisted shelter-type 8 (DanChurchAid and ECHO); plan, view and nearby safe-water tank (Author, 2008)

C. Shelter-sustainability: summary of surveyed data

Building material: Mud has been predominantly used for construction of plinths while CGI sheets are used for outer walls and covering of roofs. For type 7 only, the plinth is made of brick and filled in with mud. In three cases out of eight, prefabricated RCC posts (6"X6") have been used as vertical members of the super-structure, while thin (around 3"X2") wooden sections are used for the rest. However, if spoken in terms of durability, un-stabilized[4] mud is found to be the major area of concern while very low-strength and ordinary CGI sheets for walls and roofs speaks for the feeble nature of the membranes, thus of the shelter itself. As found, quite interestingly, almost all of the materials were imported. For most cases, the relief-getter had to carry them on to his/her own building-site after downloading from boats or trucks. For the rest, an amount of money was provided to them for purchasing necessary materials from local markets. A few households though, used materials from their old houses while most used thin wooden sections for constructing horizontal structures for wall and roof.

Building structure: Depending on the material-attributes, almost all the completed buildings look very 'nervous' structurally, even through the visual survey. When asked about what did they do during this year's biggest cyclone (*Reshmi*, occurred in October 2008), almost all said that they had to run away, as all their assisted buildings were felt vulnerable to even much less-strength wind than *Sidr*. However, amongst these eight, only three seem to have useful plinth height (2-6" to 3'-0"); the others, against the traditional practice of building plinths higher, had to settle down with very low plinths (6" to 1'-0"), as instructed (and to some extent were compelled to) by the donors. Very shallow foundation[5] (only 2' to 2'-6") and lack of any horizontal tie (such as grade beam for RCC structures) for holding the posts together are noticed for at least seven cases. In combination with a weak mud plinth (vulnerable to erosion due to possible tidal surges and fall on its sides), many of these buildings lack severe anchorage deficiency, which makes sub-structures vulnerable, even more than previous times. In addition, the super-structure is not so strong either. Very few structures have used some kind of cross bracings (two used horizontal ties) or roof trusses (see figure 4). For the walls, in most cases, very few (or no) horizontal tie was provided with the original structure by the donors in the first place; these were only added by the users at their own cost (figure 2).

Technology: Technology used for building these shelters are neither imported and nor do they make use of any local know-how. For most cases, simply no effort has been made to combine traditional skill with professional knowledge. As found through the survey, almost all of these projects are coordinated by local NGO workers, the most frequent supervisors prior to and during construction. Alarmingly, these people have no or minimum knowledge about structural systems of buildings. For a few projects (e.g. type 6), the involvement of an on-site structural engineer was confirmed. The overall compactness of the structure (also the use of T-shaped posts beneath ground) thus speaks in favour of this involvement.

Participation: The planning process regarding all shelters seems non-inclusive; most of the users were never actually asked about their needs and possible ideas they might have. Many of the plans (except for the personal donation-type 3 and *TESCO* donation-type 6), were laid-out far away from the actual setting. No information about any social survey (concerning a family's needs) prior to such decision-making has been recorded. It was only the *TESCO* case, where people were actually asked about their requirement of spaces and their space usage pattern. Modification to a preconceived plan was thus made by adding an extra bay (figure 6). Nevertheless, the whole decision-making process thus seems top-down, bureaucratic and far away from the actual aspirations of the 'real' stakeholders. The house-owner of type 8 tells that *houses given to us are designed in towns*, considering the lack of sensitivity to rural need-pattern and space-usage. Besides, for only two cases, local masons[6] have

4. Stabilization is done using cement or similar binding materials, as did *BRAC* (NGO), in *Kuakata*, another severely *Sidr*-affected area; please visit http://imrul12.googlepages.com/sidr.pdf or refer to Ahmed [10] who also describes similar *Grameen Bank* (another NGO)'s experience
5. Identified as the main reason for traditional houses to be lifted off or blown-away by strong wind [11] or tidal surge
6. Local masons are likely to have comprehensive understanding about local building practices regarding site selection, orientation, building

been engaged. For the rest, a set of contractors came in and start building houses one in each day. People only participated up to the level of preparing the plinth and provide physical labour during the erection period. No capacity building or *safe-building* training was ever attempted by any donors/NGOs.

Organization and planning: Many issues important have not been considered in the implemented plan. The spatial needs, family size, family occupation, household economic activities, places for livestock and poultry etc. have been overlooked or probably neglected. Many plans (such as types 1-4 and 8) were actually prepared without a verandah. As the researcher came to know, that all the houses in these areas actually have two verandas on both sides of living space. All of the households complained about the lack of space for poultry and livestock. The researcher came across persons living in a type 4 shelter, who got in a fix about where to put in their cow, which he received from another donor. The house he got is not enough even for his family of four, let alone a cow. Curiously, it was observed that much stronger houses (with better materials such as brick and better structural system such as wall-slab) are built (and still are) away from the river-face, where the destructive effect of tidal surge and wind velocity is much higher than a location 1 km inside from the river-face. Amazingly, this is carried out by the same NGO.

Flexibility and modification options: The incredible thing for many of these shelters is that the option for enlargement (and further modification) was not even thought of, while the process of plinth-making was going on and during laying out the plan on ground (figures 2 and 8). The people were only asked to show where they want their house to be built. But for almost all cases, no professional inputs were ever given to them by the builders about any selection criterion for a 'correct' site. It seems that the absence of technical personnel (e.g. architect or engineer) and predominant role of NGO supervisors and foreign masons (some of them came from as far and as *Sylhet* and *Serajgonj* – two districts of Bangladesh, quite distant from the concerned study area; hence in culture and building tradition) probably led to this. However, the before-mentioned *Core Shelter* idea [1] or ideas similar to Charles Correa's *Incrementality….and Disaggregation of spaces to allow for participation in forming one's own environment, to facilitate income generation activities* [12], are far from evident as far as flexibility of these shelters' designs are concerned.

techniques, strengths and weakness of buildings, materials, idea about safer houses etc.

Figure 9: Showing predominant and exaggerated use of CGI sheets in assisted rural-coastal shelters (Author, 2008)

Contextual responsiveness: Most of the shelter projects are climatically irresponsive. Although most of these buildings being correct in terms of orientation, the selection of surface material (CGI sheet for both roofs and floors) make life difficult for users on an average summer's day. Without any verandah or any proper shading device for the walls, the buildings heat up very quickly. The use of prototype openings, their small size and inadequate numbers also hampers air-flow and ventilation. On overall rural agriculture, the effect of using hundreds of thousands of CGI sheets for thousands of houses (see figure 9) is worth investigation also.

Overall expenses and maintenance: The amount spent for constructing each household ranges from BDT 20,000 to 40,000 as supposed by the owners. In only two cases (types 6 and 7), the amount goes past BDT 70,000 and 100,000 respectively. The most interesting of all is that most of the households, in addition to their uncounted labour-cost, actually spent 20%-30% supplementary amount with the original expenses to further modify their homesteads. All informed that they were actually ready to spend some amount and a

few actually saved a bit of money received from other sources and used here. The researcher came to learn about a Swiss donation of BDT 15,000 (paid in phases), which many used to purchase land. Since the predominant material remains CGI sheets, the maintenance cost seems nil but the older houses (such as type 1). Only after nine months after construction, these are showing signs of corrosion. And as expected, houses with mud plinths are to be maintained regularly as major efforts were given to all of them during and after the monsoon.

In-house income generation: None of the houses are designed with any spatial provisions; in fact, none of these schemes actually even thought about the provisions for at least poultry or livestock.

User's perception: Too quick construction, slow bureaucratic process of sanction (materials), hard-to-reach donors (specifically, their site representatives such as masons), and donors intentions (some were busy hanging signboards and taking photographs of those) have been raised as key observations working with donors. Only the *TESCO*- and personal-funded households expressed their satisfaction since they were able to communicate their needs and spend money according to their own needs (and employ local masons) respectively. Doubts have been posed by type 4 house-owners regarding the difference between actual amount spent on-site and the original amount sanctioned from ministry. People were showing bundles of unused CGI sheets, boxes full of nuts, bolts and knobs and other extra house-building accessories, which they believe, were supposed to be used if the shelter was constructed much bigger than it is now. Nevertheless, BDT 15,000 donation from Switzerland was mentioned by everybody as a systematic yet flexible and useful scheme. The freedom to invest into any type of venture and the two-phase sanction scheme (second instalment received upon proper use of the first) also proved very comfortable for many. In their study, Davidson *et al.* also mentions similar donation schemes and their effect on communities [5]. However, when asked about the real beneficiary of this whole assistance might be, all relief-getters mentioned themselves first, and did not forget to mention the NGOs (thus donors) and foreign contractors either.

Perception about public representative/ administration: Complains about nepotism and biasness by local *Chairman and Members* for own party-people and relatives have been common. Many believe that the local public administrator (*TNO*) actually used them, in their terms, as a *showroom*, to bring in more relief by presenting them as the worst case scenario. This way, they received assistances much later (and lesser as well) than other areas, which are less affected than they are.

V. REMARKS AND CONCLUSION

The term *Sustainability* can be used only when a long-term implication from it is evident. Regarding the post-*Sidr* shelter situation, like in the event of any similar incidence, the dichotomy is that the shelters needs to be built fast, while making sure that the needs and aspirations of individual households are taken into account. As it is understood that speedy construction requires prototypes, which are unable to fulfil such needs and aspiration. Additionally, it can be argued as well that shelters need not to be sustainable since they are never meant for the long-term. However, these shelters cannot be termed as *immediate shelters* since most of them are still under the process of building and most of their construction took three or more months to start after the devastation[7]. And considering government's *Core Shelter* idea, and many other donor-provided housing scheme, it is not difficult to deduce that the basic idea behind all shelters are provisioning for more than shelters; these shelters are, in fact, attribute closely with 'home'. Nonetheless, answering to the following two questions wrap up this paper:

A. Do these assistances benefit the target-population?

YES, in the first place; people left with nothing had been given an opportunity to have a place of their own. The process was all fine up to the point when a central database, consisting of the truly needy has been prepared by the Army and since many of these households got fairly comprehensive assistances for household reconstruction (e.g. shelter, toilet, drinking water tank etc) according to the database.

7. Referred to as *Reconstruction period* when it starts three months or more [13] after disaster

Yet again, the answer is also *NO*, especially considering the way houses were imposed and the amount of money spent, the most of the process seems wasteful and the long-term effects being least thought-of. Providing houses without ensuring any significant contribution from the receivers' part made the receivers even more dependent and less active. The process left them with very little belonging with their received shelters. Coupled with this, the shelters, by and large, are structurally vulnerable, organizationally incapable, functionally inadequate, materially feeble, climatically irresponsive and visually shocking. And on a broader scale, almost no job opportunity was created by using local resources, nor was any capacity-building for the affected followed up. Also there were no quality control and construction standards supervised; and any post-construction evaluation was ever followed up. Quite realistically, the overall community participation was close to nil. Without conforming to the fundamentals of housing-reconstruction and -rehabilitation (which also was altogether government and donors' commitment - see [1]), many assisted shelters appear to be partial failures if not complete.

B. What should be the 'better' approach?

As Rapoport identifies [8], the need for a culture-specific (thus contextual) housing cannot be overlooked. Shelter projects (turned into housing in the long run) therefore must also assume that the key to their success eventually lies in the participation of the very community members, whose 'homes' are under question [13], and who are in fact the flag-bearers of that particular culture in which the housing is being contextualized.

As part of a sustainable recovery process, several 'participatory' reconnaissance surveys have to be conducted (similar to what army did immediately after *Sidr* for preparing a database) by teams, composed of locals and professionals. These teams must walk and work through disaster-stricken locales and identify appropriate pre-design elements for that particular community. Indeed they must take note of the demographic information, in- and out-house income-generating activities, ownership of livestock/poultry, particular spatial needs and preferences, building techniques and materials, local idea about safer houses and so on. Yet, in no way, these teams must undermine the subjective attributes of that community; particular importance must be given on grasping their socio-cultural norms and beliefs as well.

As these teams accumulate enough insight of the community in question (I want to avoid the usage of the term *information* instead of insight, for the former being reductionist in nature), it is in the planning and design phase, when locals must be actively involved in the process and enjoy the designation of responsibility. Flexibility in design through customization options must be the key aim for all efforts while local knowledge and know-how will act as a key force behind these user-driven projects. Eventually during construction, local materials, masons and craftsmen, personal involvement and traditional knowledge should all be taken into account and implemented on a case by case basis.

The process of reconstruction thus must enable the victims to strategise and pool their resources and possibly *permute and combine* between the existing and received resources in times of need as they feel it; this has been evident in the findings section that direct donation of money and other resources instead of 'turnkey' houses are far more effective and proved useful for most of the victims. This way, customization, flexibility and participation could be ensured for all three stages of the development, and ample opportunities for customization should be left for the owner-users. The added freedom, however, is expected to allow these people to engage and shape homesteads in ways they wish to, as they always have done. This larger process of rehabilitation, therefore, is likely to facilitate the smaller processes that include resource spending, construction and/or repair, and involvement towards the eventual fulfilment of their needs, satisfaction of their aspirations and symbolization of their status in the society. A unique sense of identity is thus imparted through the image they make of themselves. Perhaps such a process suggests one way of achieving sustainability through the assisted shelter projects.

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